

SPECS Climate Prediction for Climate Services

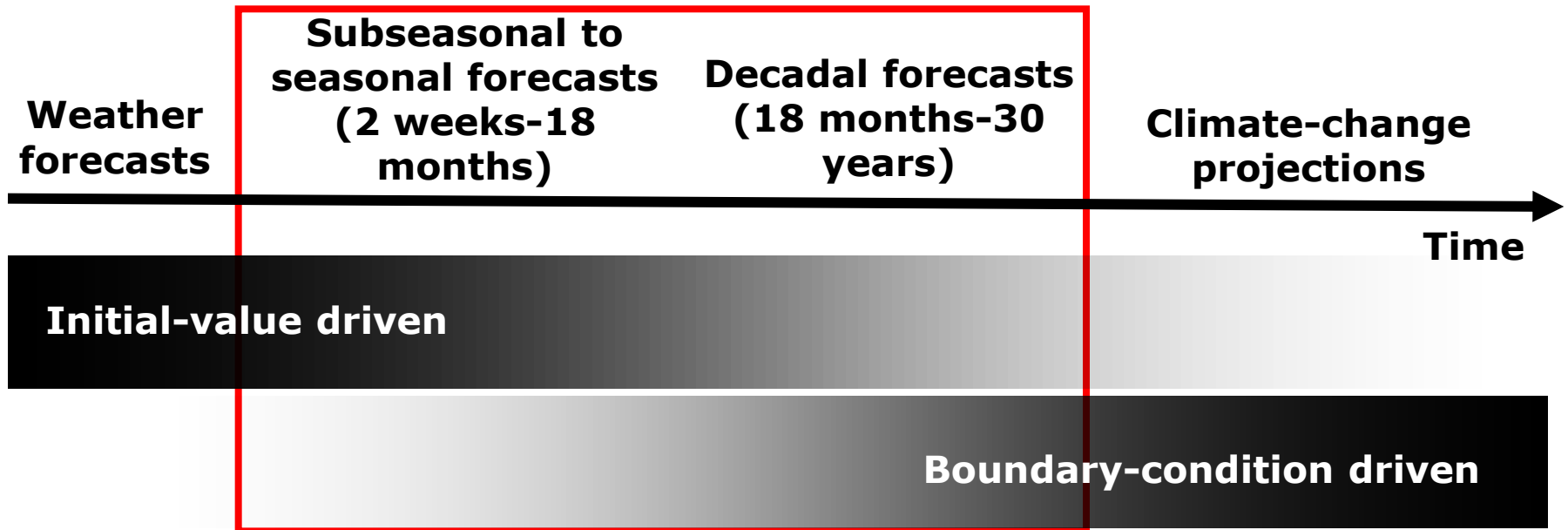
F.J. Doblas-Reyes
ICREA and IC3, Barcelona, Spain



- **Work on initialisation:** initial conditions for all components (including better ocean), better ensemble generation, etc. Link to observational and reanalysis efforts.
- **Model improvement:** leverage knowledge and resources from modelling at other time scales, drift reduction, better sea ice, projections of volcanic and anthropogenic aerosols, vegetation and land, etc. More efficient codes and adequate computing resources.
- **Calibration and combination:** empirical prediction (better use of current benchmarks), local knowledge.
- **Forecast quality assessment:** scores closer to the user, reliability as a main target, process-based verification.
- **More sensitivity to the users' needs:** going beyond downscaling, better documentation (e.g. use the IPCC language), demonstration of value and outreach.

Climate prediction

Progression from initial-value problems with weather forecasting at one end and multi-decadal to century projections as a forced boundary condition problem at the other, with climate prediction (**sub-seasonal, seasonal and decadal**) in the middle. Prediction involves initialization and systematic comparison with a **simultaneous** reference.



Adapted from Meehl et al. (2009)

What: to produce quasi-operational and actionable local climate information

Why: need information with improved forecast quality, a focus on extreme climate events and enhanced communication and services for RCOFs, NHMSs and a wide range of public and private stakeholders

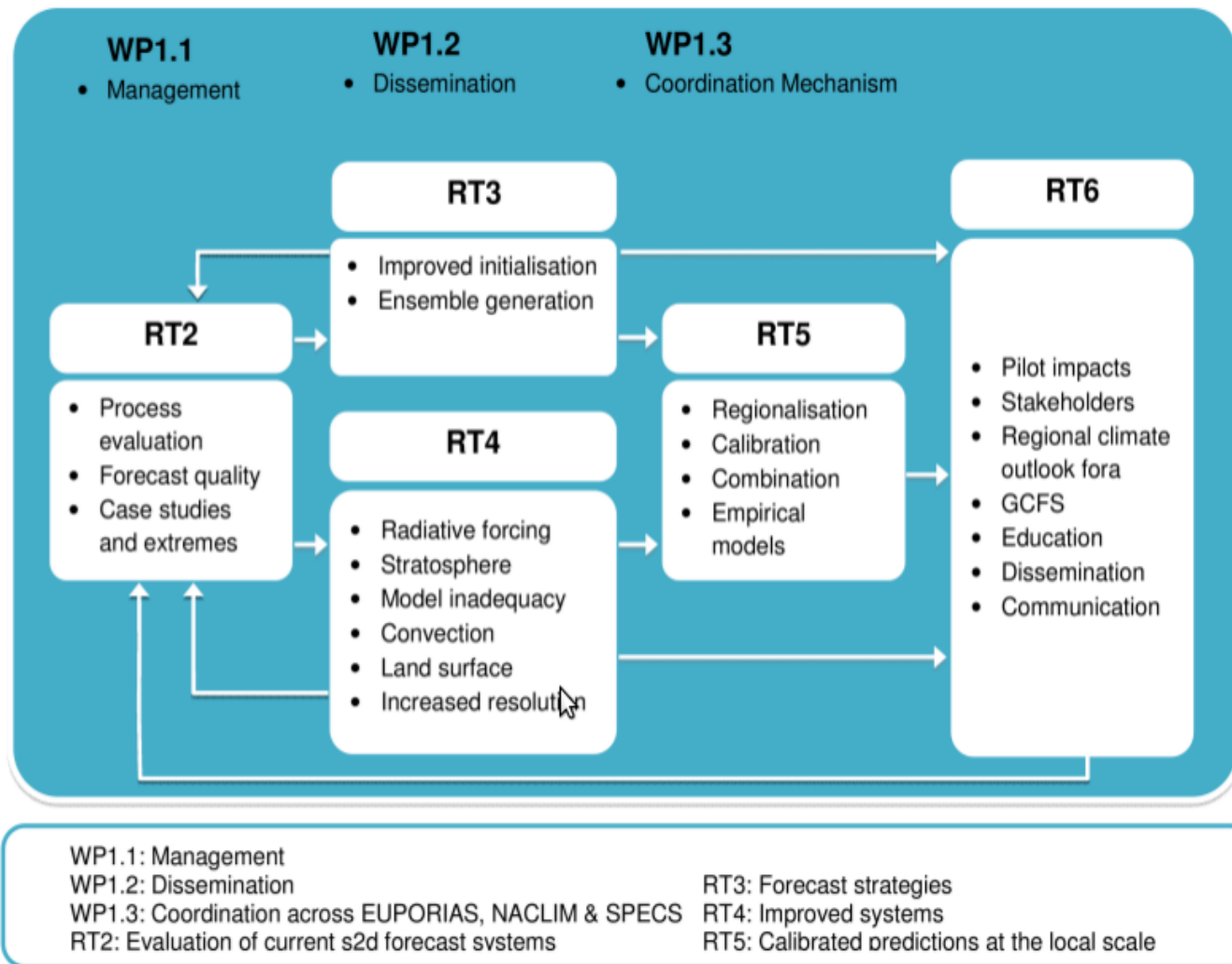
How: with a new generation of reliable European climate forecast systems, including initialised ESMs, efficient regionalisation tools and combination methods, and an enhanced dissemination and communication protocol

Where: over land, focus on Europe, Africa, South America

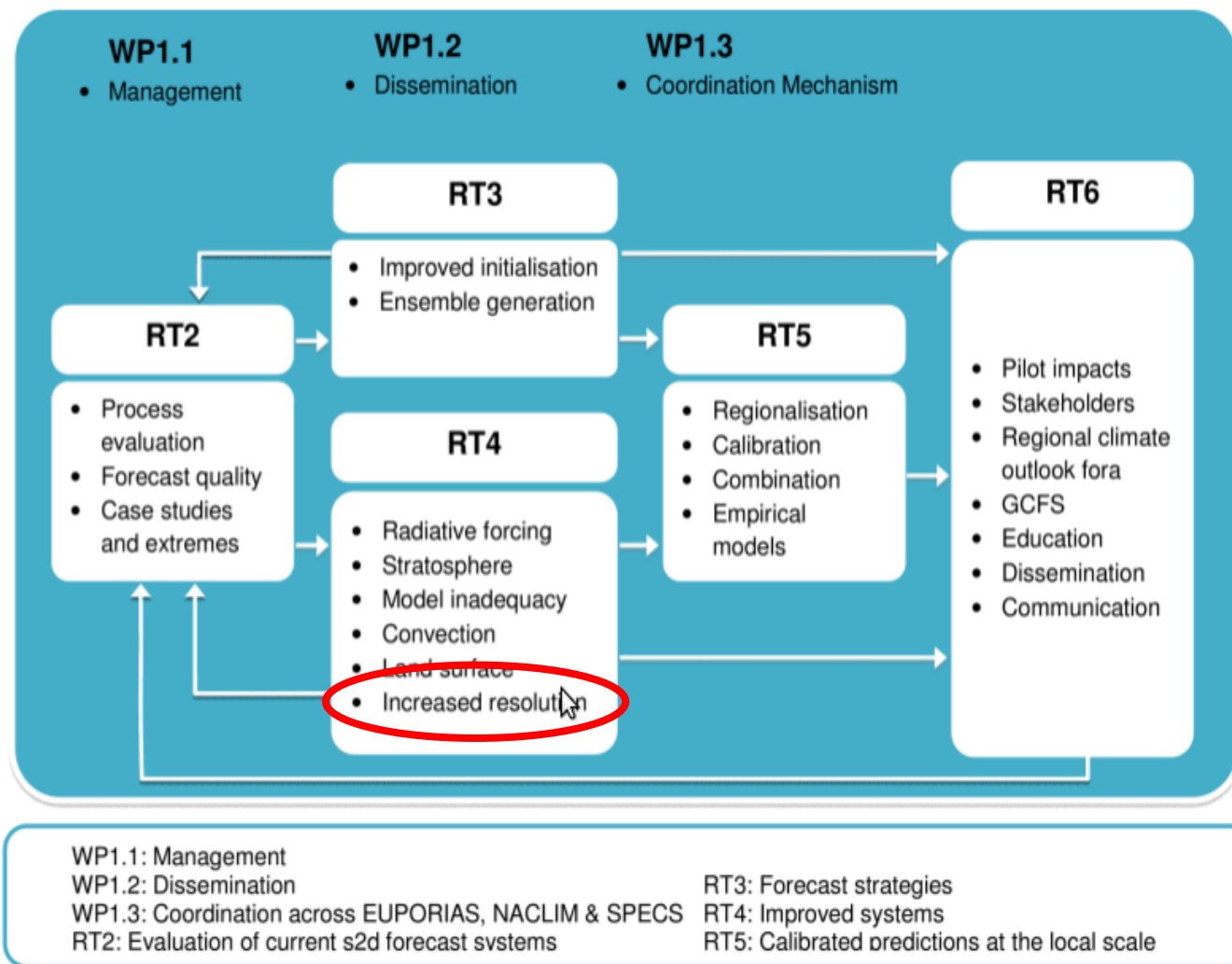
When: seasonal-to-decadal time scales over the longest possible observational period

<http://www.specs-fp7.eu>

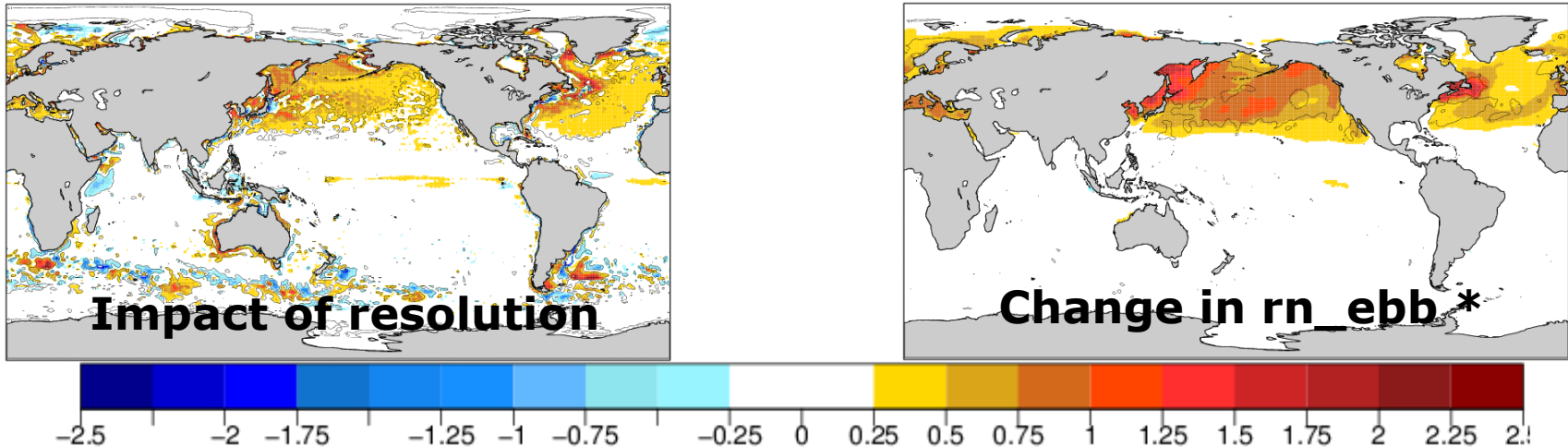
Forecast System	Project Partners
CNRM-CM5	CNRM, CERFACS
EC-Earth	KNMI, SMHI, IC3, ENEA
IFS/NEMO	ECMWF, UOXF
IPSL-CM5	CNRS
MPI-ESM	MPG, UniHH
UM	UKMET



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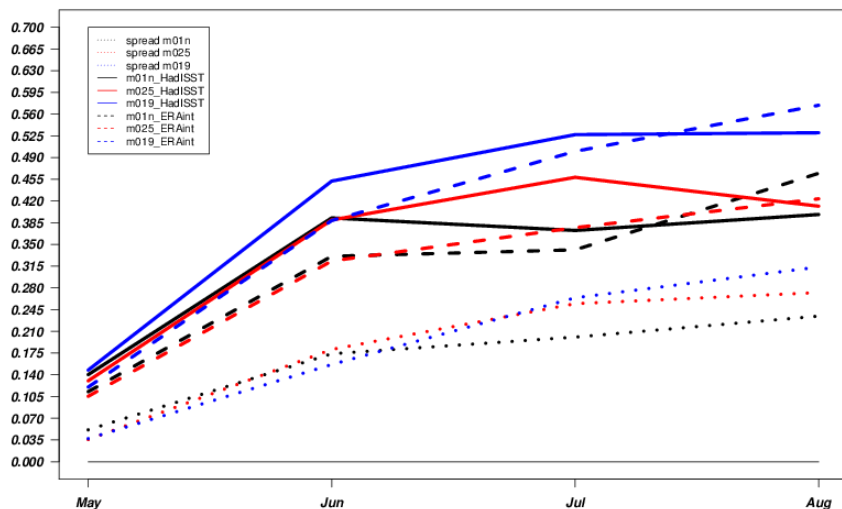


Mean difference of SST (K) systematic error versus ERAInt for JJA one-month lead predictions with EC-Earth3. May start dates over 1993-2009 using ERA-Interim and GLORYS initial conditions.

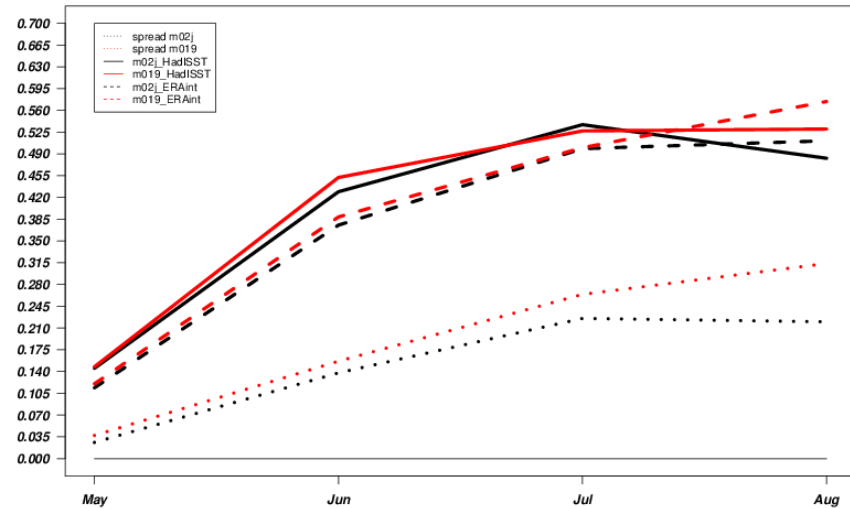


* rn_ebb: coef. of the surface input of tke

RMSE (solid and dashed) and spread (dotted) of Niño3.4 SST from four-month EC-Earth3 hindcasts: (left) **T255/ORCA1**, T511/ORCA025 and **T255/ORCA025**; (right) **official release** and modified rn_ebb. May start dates over 1993-2009 using ERA-Interim and GLORYS initial conditions.



Impact of resolution



Change in rn_ebb

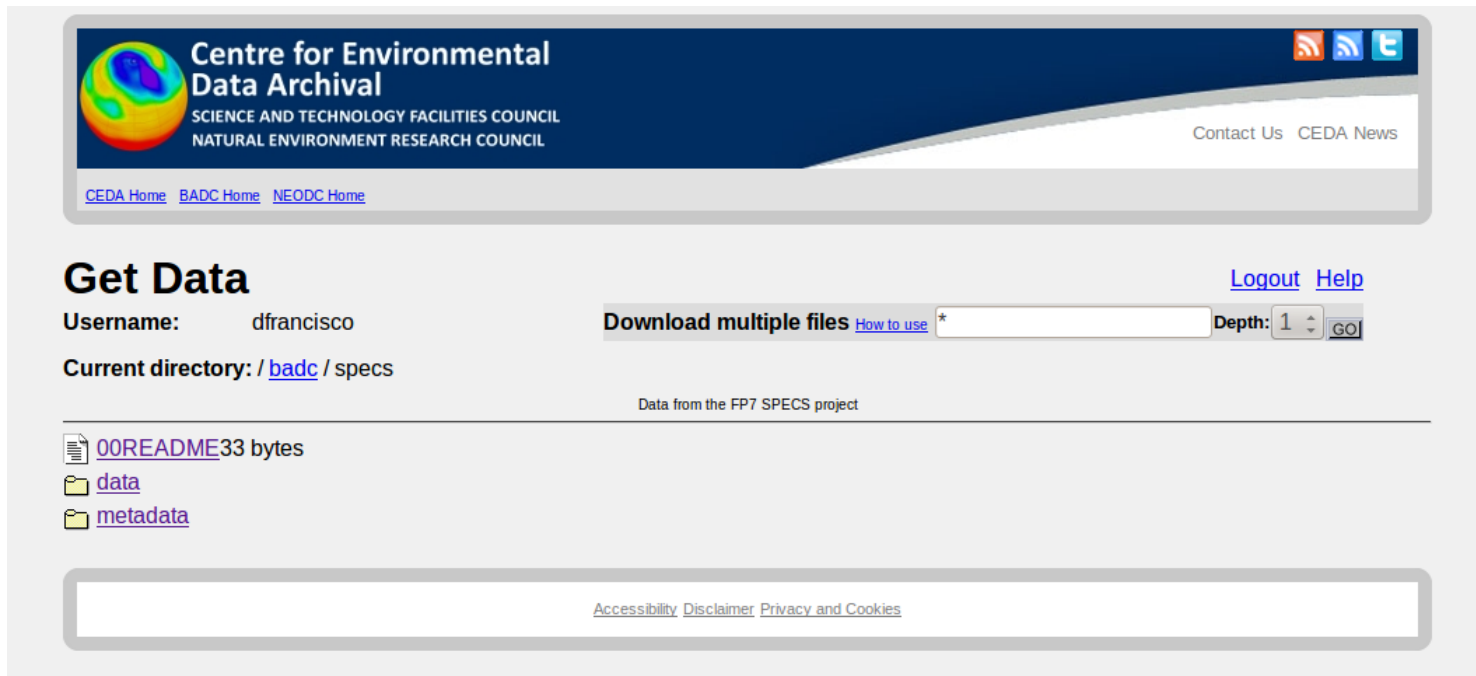
C. Prodhomme (IC3)

Data dissemination

Centralised data repository at BADC with files using a new convention building on both CMIP5 and CHFP (which will become the basis for CMIP6).

Data published on the ESG after quality control reachable by other services (ECOMS UDG, Climate Explorer, etc).

Multiple sensitivity experiments and NMME operational data already available.



The screenshot shows the CEDA website interface. At the top, there is a header with the CEDA logo, the text "Centre for Environmental Data Archival", and the affiliations "SCIENCE AND TECHNOLOGY FACILITIES COUNCIL" and "NATURAL ENVIRONMENT RESEARCH COUNCIL". There are also social media icons for RSS, Twitter, and Facebook, and links for "Contact Us" and "CEDA News". Below the header, there are links for "CEDA Home", "BADC Home", and "NEODC Home". The main section is titled "Get Data" and includes a "Logout" and "Help" link. A "Username:" field shows "dfrancisco". A "Download multiple files" button is next to a "How to use" link and a text input field with an asterisk. A "Depth:" dropdown menu is set to "1" with a "GO" button. The "Current directory:" is shown as "/ [badc](#) / specs". Below this, it says "Data from the FP7 SPECS project". There is a list of files and folders: a document icon for "00README" (33 bytes), a folder icon for "data", and a folder icon for "metadata". At the bottom, there is a footer with links for "Accessibility", "Disclaimer", "Privacy and Cookies".

GA 2014 verification demo

Aims and Agenda for the 2nd SPECS Verification Workshop [\[edit\]](#)

The aims of this short workshop are to:

- demonstrate new software that has been developed for verification;
- allow participants try this out on their own laptops;
- have a brief discussion about future needs and plans.

The planned agenda for the workshop is as follows:

Time Activity

11:00-11:20 Demo of UNEXE SpecsVerification software

11:20-11:40 Demo of IC3 S2dverification software

11:40-12:00 Demo of Meteo-Swiss verification software

12:00-12:45 Hands on session for participants to try out software

12:45-13:00 Brief discussion about future needs and plans

All these packages run in the freely available R language. See the R project site www.r-project.org to download R. Please also consider loading in your favourite forecast and observation data beforehand so that you can try out the verification on your own data.

More information about the new software is given below ...

- [SpecsVerification Demo talk-Media:Specsverification.pdf](#)
- [S2dverification Demo talk-Media:s2dverification.pdf](#)
- [Meteo-Swiss verification Demo talk-Media:veri.pdf](#)

A joint two-day workshop with 16 attendants to “discuss the recent developments in initial shock, drift and systematic error assessment in a climate prediction context”.

Author: *Chloé Prodhomme, Francisco Doblas-Reyes, Belén Rodríguez-Fonseca*

Date: 19/05/2014

Subject: SPECS-PREFACE workshop
Initial shock, drift and systematic error
(IC3, Barcelona, Spain, 27-28 March 2014)

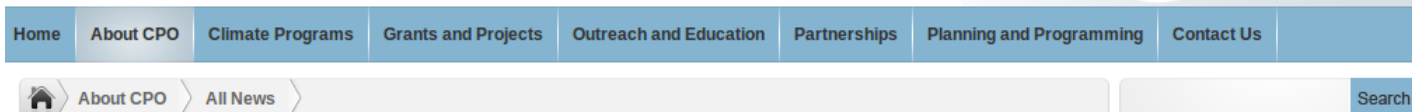
1. Introduction and workshop description

A workshop took place at IC3 with the objective of discussing the recent developments in initial shock, drift and systematic error assessment in a climate prediction context. This workshop was considered necessary because, despite the large communities working in the identification of the reasons for the large range of model biases, very little work has been done in understanding the causes of the initial shock and in ways to reduce the impact of the drift.

Scientists from the SPECS and PREFACE projects, from IC3, CERFACS, University of Bergen, University of Reading, MPI, University of Santander and Universidad Complutense de Madrid, participated in the workshop. The format consisted in a set of brief presentations, which are available from the SPECS web site (<http://www.specs-ecmwf.eu>)

The outcome of the workshop was presented at the NOAA virtual workshop on “Bias Corrections in Subseasonal to Interannual Predictions”.

11:35 am – 12:05pm: [SPECS-PREFACE workshop on initial shock, drift and systematic error](#) (F. Doblas-Reyes; 25 minutes presentation, 5 minutes questions) - **Invited**



[Virtual Workshop on Bias Corrections in Subseasonal to Interannual Predictions](#)

**Climate Prediction Task Force Virtual Workshop
Bias Corrections in Subseasonal to Interannual Predictions**

30 September - 2 October 2014

[Archive of presentations](#)

[About the Climate Program Office](#)

The Climate Program Office (CPO) manages competitive research programs in which NOAA funds high-priority climate science, assessments, decision support research, outreach, education, and capacity-building activities designed to advance our understanding of Earth's climate system, and to foster the application of this knowledge in risk management and adaptation efforts. CPO-supported research is conducted in regions across the United States, at national and international scales, and

WCRP's Working Group on Seasonal-to-Interannual Prediction: "Long-Range Forecast Transient Intercomparison Project"

Grand Challenge on Regional Climate Information: What gaps in our scientific understanding and information, if addressed, would maximise the value content of regional climate information?

Steering group: Clare Goodess (WGRC), Francisco Doblas-Reyes (WGSIP), Lisa Goddard (CLIVAR), Bruce Hewitson (WGRC), Jan Polcher (GEWEX & WGRC), supported by Roberta Boscolo (WCRP)

WCRP Organization

